

Application No. 09/672,421
Amendment dated June 17, 2004
Reply to Office Action dated March 24, 2004
Express Mail EV406652200US

Remarks/Arguments

The Office Action dated March 24, 2004, has been noted, and its contents carefully studied. In light of the above amendments to the application, reconsideration of the objections to the drawings and the title, and the rejection of the claims under 35 U.S.C. §102, §103 and/or §112 is courteously requested.

Turning initially to the objection to the drawings, reference has been added to reference signs 132 and 133 at page 7 of the specification; to reference signs 301 and 304 to page 8 of the specification; and to reference signs 501 and 502 to pages 8 and 9 of the specification.

It is respectfully urged that the manner of adding text to the application is self-evident from the drawings and the overall description of the invention in the application, and does not introduce new matter.

In addition, with respect to reference signs 401-416 and 601-609, attached is a proposed drawing correction showing in red the proposed changes to Figures 4 and 6 in a manner to bring the application into compliance with 37 C.F.R. §1.84(p)(5). It is believed that these reference signs are not necessary in the drawings, nor in the specification because the operation of the flowcharts shown in Figure 4 and Figure 6 are self-evident from a review of the flowcharts and the description of Figures 3 and 5 in the specification, and specific reference to the missing reference signs from the specification is not required. Accordingly, approval of the proposed drawing correction is courteously requested. To facilitate and expedite the prosecution of the application, also enclosed are substitute Figures 4 and 6 with the noted reference signs deleted. Accordingly, entry of the substitute Figures 4 and 6 is also courteously requested.

With respect to the objection to the title of the invention, a new title is now provided in which the application is entitled "Method and System for Identifying Memory Component Identifiers Associated with Data". This title is consistent with the preamble of the various claims presented for the Examiner's reconsideration.

Turning now to the 35 U.S.C. §112 rejection of the claims, it is noted that as to claims 2 and 21, the specification has been amended at page 10 to provide proper support for the list of identifiers set forth in those claims. This amendment is proper and does not introduce new matter because the claims form part of the original disclosure. As such, by amending the

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application at page 10, proper support is now found for these claims. As such, it is believed there are sufficient reasons for the Examiner to withdraw the 35 U.S.C. §112 rejection with respect to claims 2 and 10.

As to the objection to claims 10, 17 – 19, 29 and 36 – 38, these claims have been canceled and the 35 U.S.C. §112 rejection is no longer appropriate. With respect to the rejection under 35 U.S.C. §112 to claims 4 and 23, these claims have been amended to delete the term “substantially”.

The Examiner’s indication of allowable subject matter in the form of claims 5 and 24 is gratefully acknowledged. As such, it is noted that claims 5 and 24 have been canceled and new independent claims 39 and 40 added. The new independent claims correspond to claims 5 and 24 in independent form, including all of the distinctly claimed limitation of the base claim and any intervening claims. Since the Examiner has already indicated that such independent claims would be allowed, the new independent claims are not discussed further in detail herein.

Turning now to the remaining claims which have been rejected either on the basis of U.S. Patent No. 6,332,158 to Risley et al., alone or in combination with U.S. Patent No. 5,778,430 to Ish et al., it is respectfully urged that these patents failed to anticipate under 35 U.S.C. §102, or render the invention obvious under 35 U.S.C. §103, as currently claimed. To further facilitate the Examiner’s reconsideration, a discussion of the invention is presented followed by a detailed discussion of the references and the reasons why the references are not applicable to reject the claims.

In one aspect, the invention is directed to a caching system for identifying memory component identifiers associated with data in a storage device. The system includes means for creating a cache of the memory component identifiers in which the memory component identifiers comprise identifiers that are invalid. The system also includes means for managing the cache of memory component identifiers.

Similarly, the invention is also directed to a caching method for identifying memory component identifiers associated with data in a storage device. The method includes creating a cache of memory component identifiers which comprise identifiers that are invalid, and managing the cache of memory component identifiers.

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In a more specific aspect, the system and method is implemented with a disk drive including a disk in which is stored a tree structure of data located in directories and files, and a main memory for storing data, with the data stored in the memory being accessible at a rate faster than the rate at which the data stored on disk can be accessed. In a yet more specific aspect, the cache of a negative cache of memory component identifiers that are not associated with data in the storage device. The identifiers can be one or more of: identifiers that are moved from a first storage location to a second storage location; identifiers that are deleted; identifiers that are dynamic; identifiers that are renamed; and identifiers selected by a user. In addition to caching memory component identifiers that are invalid, the invention can also cache memory component identifiers which are valid.

As previously urged, it is respectfully urged that the invention as claimed is not anticipated or obvious from the cited references under 35 U.S.C. §102 and/or §103, as will become more clearly evident from the following detailed discussion of the references, which is presented herein for the Examiner's kind consideration.

U.S. Patent No. 6,332,158 to Risley et al.

U.S. Patent No. 6,332,158 to Risley et al. (hereinafter "Risley") has been cited for the proposition of disclosing a caching system for identifying memory component identifiers associated with data in a storage device. The Examiner has asserted that Risley teaches means for creating a cache of the memory component identifiers where the memory component identifiers comprise identifiers that are invalid, as well as means for managing the cache of memory component identifiers. Column 8, lines 46 – 58, and column 9, lines 49 – 67 are cited as supporting the proposition advanced by the Examiner.

It is respectfully urged that this interpretation of the patent is a selective extraction of portions of the teachings of the patent out of context in a hindsight interpretation designed to arrive at Applicants' claimed invention. As such, such an interpretation of the patent is improper and it is respectfully urged that the patent fails to anticipate the claimed invention in its broadest aspects as will become self-evident from the further discussion set forth herein.

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More specifically, Applicants' invention as in claims 1 and 20 relates a caching system in a data processing system as well as a method of caching in a data processing system for identifying memory component identifiers associated with data in a storage device. This is clearly in contrast with the teachings of Risley which provides a domain name system lookup which allows intelligent collection of searches and presentation of auxiliary information.

More specifically, Risley merely provides a system which includes a domain name server used in connection with a user's computer to assist a user in selecting desired domains on the Internet. When a user on a computer wishes to obtain information, a query is sent to a domain name server (a separate computer). If the domain name exists, the domain name server provides a corresponding machine address back to the user's computer (another separate computer). If the domain name query uses a non-existent domain name, then a machine address for a computer that executes a domain recommendation engine is provided (yet still another separate computer). The domain recommendation engine then displays a list of suggested domain names that have a higher likelihood of being the domain name for the user intended (an indication of possibly valid domain names).

As may be appreciated, this has nothing to do with a cache management technique in a data processing system and instead, relates to a complicated set of communications between multiple computers in attempting to identify the proper IP address from which domain name servers operate in a traditional server sense to provide information to a requesting computer about the location of a webpage on a server connected to the Internet. This has nothing to do with a caching system in a data processing system for identifying memory component identifiers associated with a storage device.

In fact, what Risley actually teaches is the concept of having a user's client computer directed to use a predetermined name server for DNS (Domain Name Server) lookup. This is done by designating the machine address of a name server, i.e., a different computer, as the primary DNS named server. When an application running on the client computer desires to access information at another computer on the Internet, the client computer submits a domain name query to a domain name server, (column 7, lines 58 - 65). There is no concept of a user employing any type of caching scheme at the user's computer for invalid identifiers relating to

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data in a storage device. In fact, instead of a cache of memory component identifiers comprising identifiers which are invalid, after determining that a name is invalid, the server, and not the user's computer, rewrites a packet into a positive response. The DNS name server of the Risley system responds to an invalid DNS name queried by giving the non-standard of reply that the domain name is valid and is associated with a machine address. The machine address is referred to as a "temporary" machine address. The temporary machine address provided is a machine address of a server that creates "temporary" web pages to recommend to other DNS names to the user, (column 10, lines 1 – 10). Thus, in response to an invalid DNS request, what the system of Risley does is instead create valid entries at a third computer which constitutes a server, features which are totally removed and unrelated to Applicants' claimed invention.

Other features of the invention are not anticipated or obvious from Risley. For example, regarding claim 2, the Examiner has asserted the Risley further discloses the memory component identifiers which comprise identifiers selected by a user. Again, as previously discussed, Risley does not teach a cache for memory component identifiers associated with data but instead relates to IP addresses which point to web pages within disparate computer systems throughout the Internet. Yet still further, Risley also fails to teach or suggest the other identifiers set forth in claim 2 as well as the corresponding method claim.

As to claim 4, the Examiner has restated the subject matter of Applicants' claim 4 and asserted that Risley teaches those limitations, (column 8, lines 1 – 22 and column 9, lines 28 – 35). A review of the noted section of Risley fails to find correspondence between the disclosure therein, and what the Examiner has asserted Risley teaches.

With respect to the remaining claims rejected by Risley, the same comments apply, and it is respectfully urged that the characterization of the teachings of the Risley as set forth in the various paragraphs of the Office Action do not conform and are not disclosed in the cited sections of the Risley patent. Thus, for these reasons, it is respectfully urged that all of the claims as presently clearly define patentable subject matter under 35 U.S.C. §102 and/or §103 from Risley alone, or the combination of Risley with U.S. Patent No. 5,778,430 to Ish et al. discussed hereafter.

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U.S. Patent No. 5,778,430 to Ish et al.

U.S. Patent No. 5,778,430 to Ish et al (hereinafter "Ish") merely teaches a conventional computer disk cache management method and apparatus which employs a least-recently-used with aging method to determine a base candidate for replacement as a result of a cache miss. More specifically, Ish teaches a method and apparatus for determining whether a particular block which is the subject of a READ request is present in the cache at a particular time. Ish teaches determining whether a particular block or group of blocks (cache line) that is contained within the cache is the best candidate (victim) for replacement by another block or set of blocks during a cache miss. Ish employs a heap, i.e., ordered binary tree, of candidates for replacement, with the best candidate for replacement located at the root of the heap. The heap is sorted based upon frequency of use and the age of each cache line, with the least-frequently-used and/or oldest cache line at the root of the heap.

In contrast to Applicants' invention which relates to identifiers for data in a storage device, Ish relates to the actual data ("blocks") as being stored in a cache on a disk and not identifiers of the data on the storage device. More specifically, Ish teaches an apparatus for managing a computer disk cache with means for determining in response to a request from an external source to access a block of data, whether or not the block of data is contained within the computer disk cache.

This has nothing to do with Applicants' claimed invention, and even if somewhat related, it is not readily apparent how one would apply the teachings of Ish to arrive at Applicants' claimed invention. More specifically, Ish teaches a conventional computer disk cache management method and apparatus whereas Risley is a method and system implemented across the Internet in which a domain name server assists users in selecting desired domains on the Internet.

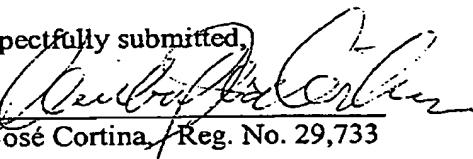
Thus, for the foregoing reasons, it is respectfully urged that the claims clearly define patentable subject matter under 35 U.S.C. §102, §103 and/or §112. It is also respectfully urged that the objections to the application and the drawings have been addressed in a manner sufficient to enable the Examiner to withdraw the objections.

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Thus, for the foregoing reasons, it is respectfully urged that the application be passed to issuance. Nonetheless, should the Examiner have any comments, questions or suggestions of a nature necessary to expedite the prosecution of the application or to place the case in condition for allowance, he is courteously requested to telephone the undersigned at the number listed below.

Dated: June 17, 2004

Respectfully submitted,


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Enclosures

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